Technical Memo

General Comments

-- Other than the data tables, there is no summary or discussion of the analytical data obtained in 2009, no presentation or discussion of observations made during the excavation of test pits (including treatability test pits), and no discussion of how the data changed the understanding of site conditions (i.e., no comparison to the 2007 EPA data).

-- The memo does not discuss or address potential waste or trash disposal pits that were discovered during the test pit excavations. Are there plans to further evaluate these waste pits and dispose of any contaminated or hazardous materials found?

-- Section 2, Page 2. Sample TS2U is described here in the technical memo as a "subsurface soil" sample. In the treatability study report, it is called a "surface soil" sample. At what depth was this sample collected?
Also, there needs to be more consideration of the significance of this material and the impact it may have on the selection of a removal alternative. Why was soil washing less effective, and is soil washing adequate for this material to achieve removal action objectives? What would a disposal alternative be? Is there a volume estimate for this material?

-- Several of the removal alternatives would be based on decisions made by the "observational approach" and/or the "sheen test." Can they elaborate on what the specific procedures are for these tests, how they would determine what material will be treated with each test, and whether these field screening tools are sufficient to achieve the removal action objectives (i.e., what makes the sheen test a "suitable test" [page 7, Section 5.2.5])?

-- The discussions of removal objectives or alternatives do not address metals, including those that exceed site screening levels (e.g., copper and lead). There is no discussion as to whether the recent data collected in 2009 indicates that metals should now be considered a contaminant of concern for the site.

-- It's not clear that the potential hydrocarbon plume extent and smear zone has been completely defined, and it hasn't been discussed in the memo, especially with regard to new data collected in 2009. A thorough discussion of the extent of contamination and the smear zone should be presented before completing an evaluation of potential removal alternatives.

-- Has there been any consideration that one of the sources of the petroleum contamination may be Bunker C, and that some petroleum may be present at the site as dense non-aqueous phase liquid (DNAPL)?

Specific Comments

-- Page 3, Section 2, Data Gaps.
What are the objectives and specifics of the "sheen" test that are being performed?
Is this the only data gap? It would seem that some of the items discussed above in the general comments section (the hydrocarbon smear zone, new free product observations on the western section of the site, whether metals is a concern, potential trash disposal pits, the significance of the TS2U material, etc.) would raise the possibility of potential data gaps.

-- Page 4, Section 4, Removal Action Objectives.
What about ecological receptors to contaminated soil, groundwater, and surface water?

-- Page 4, Section 4, Removal Action Objectives.
During the removal action itself, an objective should be groundwater and soil containment, to protect from accidental release to the river in the event that excavation is performed close to the bank.

-- Page 4, Section 4, Removal Action Alternatives. "Dissolved contaminants in groundwater have not adversely affected surface water."
Is there sufficient data to conclude this, and if so, where is the discussion? The EE/CA work plan (Section 4.5.4) identifies this as a data gap and states that this issue has not been adequately studied or addressed. Has this issue now been adequately addressed? If so, where is the discussion of the data that supports this conclusion?

-- Page 4, Section 5, Preliminary List of Removal Alternatives.
This list excludes several potential removal alternatives with no discussion, including several specifically listed in EE/CA work plans (in situ biological treatment, in situ chemical treatment, land treatment, thermal desorption, off-site disposal). Were these other alternatives adequately considered? Before narrowing down the potential alternatives for consideration, there should be some discussion of these other alternatives and why they will no longer be considered.

-- Page 4, Section 5, Preliminary List of Removal Alternatives.
It seems likely that any alternative that involves excavation below the groundwater table will require some kind of temporary groundwater storage and treatment, regardless of the alternative selected.

-- Page 5, Section 5.1.2, Improved Containment.
What methods are being considered to recover the LNAPL, and how will they ensure that the "improved containment" adequately recovers the LNAPL while allowing the groundwater to flow around it?

-- Page 7, Section 5.2.4, Improved Containment and "Hot Spot" Treatment.
"Determination of "hot spots" would be made during the removal action with the "observational approach" by means of exploratory trenches."

A. How would they find and define a hot spot with the "observational approach"?
B. Based on existing data, do they not have any estimate of where and how many hot spots may exist?
C. To be effective, it would seem that a lot of exploratory trenches would be required to find all the hot spots. By the time they found them all, wouldn't it be likely that they had excavated most of the major source or plume zone (i.e., not really a "hot spot" removal)?

Treatability Study Report

General comments

-- (Page 3, Executive Summary, and elsewhere).
At what depth was the unsaturated "surface soil" sample TS2U collected? Any conclusions about the source of the "asphaltic particles" that were not observed in the saturated samples, and any conclusions as to how prevalent these particles might be at the site (i.e., volume estimates)? Any suggested strategies to address them? Although, this is a topic that may be more appropriate for the data gaps section of the technical memo.

-- Any washed sand and gravel that results from soil washing would potentially be reused on site as backfill. This material is generated from several different steps, and there were corresponding analyses performed on each fraction (washed gravel in Table 5, washed fine gravel in Table 6, and washed sand in Tables 7-10). However, as the material would presumably be combined as backfill, it would be much more useful to consider the analytical results for this material as a whole, rather than for individual fractions. It would have been nice if a representative composite washed sand/gravel material had been analyzed. Alternatively, the analytical results for these materials should be consolidated (weighted average, as appropriate) to represent what the actual analytical characteristics of this material might be.

Specific comments

-- Page 4, Section 2.0, Purpose and Scope: "Soil washing is believed to have the highest potential for practical application for the Site."
As the treatability study only evaluated soil washing, this statement is prejudicial and should be outside the scope for the treatability study report.

-- Page 5, Section 3.1, Sample Collection.
For sample TS2U, how did they determine that the "unsaturated soils in several test were impacted with hydrocarbons," such that they decided to collect an additional treatability study sample? (Again, perhaps this should have been addressed in the technical memo.)

-- Page 6, Section 3.3, Soil Homogenization: "This soil distribution [Table 1] is not corrected for adhering soil present in the coarse gravel fraction greater than 12.5 mm. A correction for adhering soil is provided in Section 3.4 (Table 3)."
Actually, it does appear that a corrected soil distribution is provided in Table 1. Table 3 presents the particle size distribution recalculated for whole soil, not a correction for the adhering soil.

-- Page 7, Section 3.5, Untreated Soil Analysis: “Guided by the results of prior analysis of samples collected by Golder during the Site sampling efforts, only Composite #3 and Sample TS2U were selected to be analyzed for PCB.”
Please provide an explanation as to what these results were and why they indicated that only these two samples were to be analyzed for PCBs. The treatability study work plan indicates that PCBs were to be analyzed on the “Sample B” fraction from all untreated composite samples.

-- Page 7, Section 3.5, Untreated Soil Analysis: “Levels of PCB detected were low, respectively 0.107 mg/kg and 0.313 mg/kg.”
One of these samples exceeded the site screening level for the PCB (Aroclor-1260) detected. “Low” is not an accurate descriptor here relative to the site screening level.

-- Page 7, Section 3.5, Untreated Soil Analysis. Were TAL metals, TCL VOCs, and TCL SVOCs performed on the untreated composite samples (as indicated in the treatability study work plan)? The results do not seem to be included in the report.

-- Pages 6-7, Section 3.
There does not seem to be any discussion of the dry screening of Sample B nor the resulting Sample C (included in Figure 3).

-- Page 9, Section 4.5, Wash Water Clarification and Analysis: “The clarified water is of sufficient quality to allow for normal reuse as wash water in a full-scale soil washing system.”
Are there any issues with the presence of contaminants in the wash water? Would the presence of soluble compounds affect the wash water’s ability to remove additional constituents? What impact would these contaminants have on the ultimate treatment and/or disposal of the last batch of wash water?

-- Page 12, Section 5.1, Page 12: “All water used in the soil washing process is recycled...”
As noted in the tech memo, even if all process water is reused, at the end of treatment, some would be left over and require treatment or disposal.